REMARKS

Claims 1-11 are pending in the present application, and all stand rejected. Claim 4 has been amended to positively recite the selection step. Applicant submits that no new matter has been added to the application by the amendment.

The Present Invention

The present invention provides a method of decoding a moving image signal. The image signal is a stream of pixel blocks segregated into video frames and at least two decoded video frames are temporarily stored in a memory. The method includes constructing at least two motion vectors. The first motion vector is constructed from a present video frame and a video frame processed prior to the present video frame. The second motion vector is constructed from the present video frame and the video frame processed two frames prior to the present video frame. The at least two vectors are related to a pixel block of the stream of pixel blocks of a present frame. The motion of the at least two previously decoded video frames stored in memory is compensated with respect to a corresponding one of the at least two motion vectors. A predicted video frame is generated from each of the at least two previously decoded video frames for reconstructing the present pixel block of the present video frame. In this way, the predicted video frame used in reconstruction of the present pixel block is selected depending on the presence or absence of decoding error contained in the two or more predicted video frames.

Rejections Under 35 U.S.C. § 103

The Office Action has rejected claims 1-6, and 9 under 35 U.S.C § 103 as being unpatentable over U.S. Patent No. 5,737,022 (Yamaguchi et al.) in view of U.S. Patent No. 5,633,682 (Tahara). The Office Action contends that Yamaguchi teaches all of the Applicant's claim limitations with the exception of a second motion vector being constructed from the present video frame and a further video frame at least two frames prior to the present video frame. The Office Action contends that Tahara teaches the construction of second motion vector in accordance with Applicant's claimed limitations and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to

modify Yamaguchi et al. to arrive at the Applicant's claimed invention. Applicant respectfully traverses the rejection.

Amended Claim 1 recites, *inter alia*, a method of decoding a moving image signal wherein video frames of the signal are decoded by the steps of:

"...constructing at least two motion vectors, the first motion vector being constructed from a present video frame and a video frame prior to the present video frame, the second motion vector being constructed from the present video frame and the video frame processed at least two frames prior to the present video frame;

compensating the motion of at least two previously decoded video frames stored in a memory with respect to a corresponding one of the at least two motion vectors;

generating a predicted video frame from each of the at least two previously decoded video frames for reconstructing the pixel block of the present video frame; and

selecting from the at least two generated predicted video frames depending on the presence or absence of a decoding error contained in said predicted video frame." (emphasis added)

As discussed in the Response to the last Office Action, and as acknowledged by the present Office Action, Yamaguchi does not disclose or suggest a second motion vector being constructed from the present video frame and a further video frame at least two frames prior to the present video frame as recited in Applicant's claim 1.

The Office Action cites Tahara as teaching the use of a second motion vector being constructed from frame (F3-the present video frame) and that of a video frame (F1-video frame two frames prior to the video frame). The portion of the Tahara reference cited by the Office Action explains the illustration of Figure 4, namely that the motion vector X2 is constructed from the present video frame (F3) and the video frame prior to the present video frame (F2). The motion vector

X3 is constructed from the present video frame (F3) and a further video frame (F1) which is two frames prior to the present video frame. The Examiner asserts that it would have been obvious to one of ordinary skill in the art to combine the teachings of Yamaguchi and Tahara to arrive at the Applicant's claims.

Although Tahara does disclose a motion vector X2 and motion vector X3 which are derived in the manner discussed above, Figure 4 is merely a depiction as to the differences between forward predictive coding and rearward predictive coding. Tahara does not disclose or suggest utilizing both vectors (X2 and X3) for generating a predicted image from each of the at least two vectors and selecting one of the images as a predicted image depending upon the presence or absence of a coding error.

For example, as discussed at col. 5, lines 24-41 motion vector X2 (motion vector between frames F2 and F3) is utilized in a rearward prediction coding scheme. Alternatively motion vector X3 (motion vector between frames F1 and F3) is utilized in a forward predictive coding scheme. In other words, Figure 4 of Tahara simply discloses the specifics of known coding schemes. Indeed, the motion vectors are described as being transmitted along with a corresponding portion of differential data for enabling a forward predictive coding, a rearward predictive coding, or a bi-directional predictive code. The patent does not disclose or suggest the utilization of both vectors as a means for correcting an error in a pixel block of a present video frame as recited in Applicant's claims.

Applicant respectfully submits that the Examiner has not shown a teaching in either Yamaguchi or Tahara to combine the features cited by these references for arriving at the Applicant's invention. Accordingly, Applicant submits that neither Yamaguchi alone, or, in combination with Tahara discloses or suggests the Applicant's invention as recited in claim 1. As such, Applicant respectfully requests that the rejection of claim 1 under 35 U.S.C. §103 be withdrawn.

Claim 2 is directly dependent upon claim 1, and, is allowable at least for the same reasons as discussed above. According, Applicant respectfully requests that the rejection of claim 2 under 35 U.S.C. §103 be withdrawn.

Independent claims 3-5 recites substantially the same limitations as discussed above with reference to claim 1. As such, Applicant submits that claims 3-5 allowable at least for the reasons discussed above. Accordingly, Applicant respectfully requests that the rejection of claims 3-5 be withdrawn.
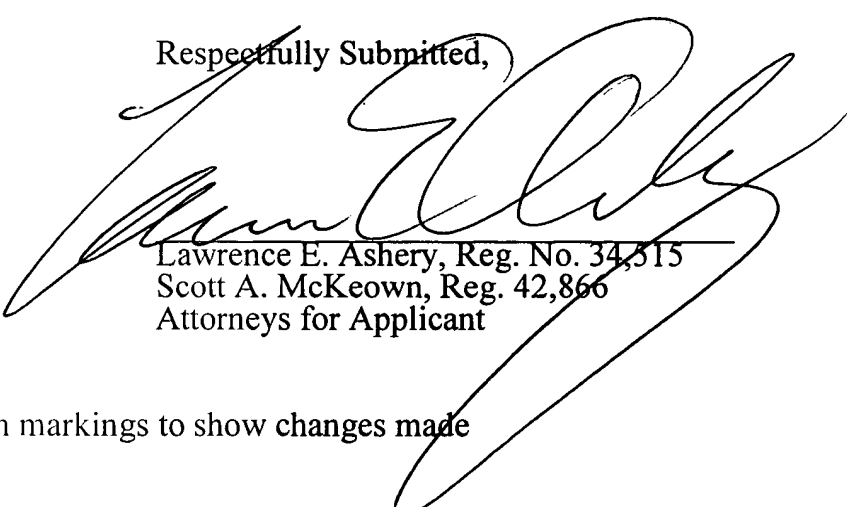
Claims 6-8 are directly or indirectly dependent upon claim 5, and, are allowable at least for the same reasons discussed above. Accordingly, Applicant respectfully requests that the rejection of claims 6-8 under 35 U.S.C. §103 be withdrawn.

Independent claim 9 recites substantially the same limitations as discussed above with independent claims 1, and 3-5, and, is allowable at least for the reasons discussed above. Accordingly, Applicant respectfully requests that the rejection of claim 9 under 35 U.S.C. §103 be withdrawn. Claims 10-11 under 35 U.S.C. §103 are directly or indirectly dependent upon independent claim 10 and, are allowable at least for the same reasons discussed above. Accordingly, Applicant respectfully requests that the rejection of claims 10-11 under 35 U.S.C. §103 be withdrawn.

Conclusion

In view of the foregoing amendment and remarks it is respectfully submitted that the present Application, including claims 1-11 is in condition for allowance, and such action is respectfully requested at an early date.

Respectfully Submitted,

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Scott A. McKeown, Reg. 42,866
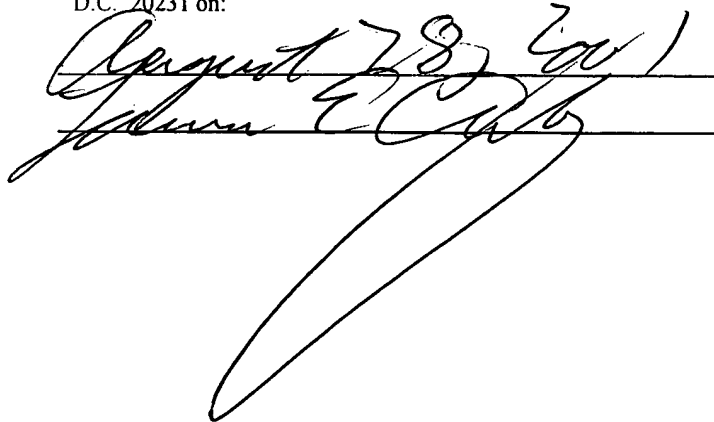Attorneys for Applicant

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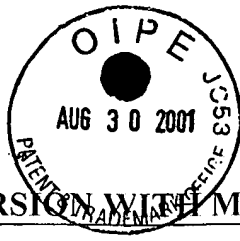Enclosure: Version with markings to show changes made

Dated: August 28, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1   1.   (Amended) A method of decoding a moving image signal, the
2   image signal being a stream of pixel blocks segregated into video frames, the
3   method comprising the steps of:

4   constructing at least two motion vectors, the first motion vector
5   being constructed from a present video frame and a video frame prior to the
6   present video frame, the second motion vector being constructed from the present
7   video frame and a further video frame at least two frames prior to the present
8   video frame;

9   compensating the motion of at least two previously decoded video
10   frames stored in a memory with respect to a corresponding one of the at least two
11   motion vectors;

12   generating a predicted video frame from each of the at least two
13   previously decoded video frames after receiving compensating for reconstructing
14   the pixel block of the present video frame,; and

15   ~~wherein the~~ selecting ~~predicted video frame is selected~~ one of the at
16   least two generated predicted video frames depending on the presence or absence
17   of a decoding error contained in said predicted video frame.